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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION.
FORT COLLINS, CO 80527-2400

EXAMINER

AGGARWAL, YOGESH K

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/676,649

Applicant(s)

SCHINNER ET AL.

Examiner

Yogesh K Aggarwal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

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Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-4, 6, 8, 11-14, 16, 18, 21 are rejected under 35 U.S.C. 102(a) and 102(e) as being anticipated by Shen et al. (US Patent # 6,122,411).

[Claim 1]

A digital still camera (figure 1: 10), comprising:

an image sensor (figure 1A: 20) mounted in a housing for receiving light and generating output signal representative of an image of an object or a scene of interest (col. 2 lines 65-67) [It is inherent that an image sensor and other circuitry associated with it is enclosed in a housing for a digital camera];

a processing circuit (figure 1B: 26) mounted in the housing and connected to the image sensor for processing the output signals from the image sensor (Col. 3, lines 9-12).

a memory (figure 1C: 32) mounted in the housing;

a control circuit (figures 1A and 1B: 28 and 34) mounted in the housing and connected to the processing circuit for successively generating a plurality of image files corresponding to a plurality of images and storing the image files in the memory in accordance with a selected one of a plurality of picture modes (col. 3 lines 6-15, col. 4 lines 14-35),

the control circuit determining a remaining picture count after each image file is generated based on a predetermined decrement number corresponding to each image file (col. 4 lines 20-35)[The

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MPU 34 compares the total number of pictures taken with a predetermined number and decrements the remaining picture count after each low or high resolution image is taken]; and means (figure 1A: 36) mounted in the housing for indicating the remaining picture count to a user (figure 3a, 3b: 50, 52 col. 3 lines 23-30).

[Claim 2]

The camera of Claim 1 wherein the indicating means includes a display (figure 1A: 36) for providing a visual representation of the remaining picture count (figure 3a, 3b: 50, 52 col. 3 lines 27-30).

[Claim 3]

The camera of Claim 1 wherein the predetermined decrement number corresponds to a size of the image file (col. 3 lines 32-40)[EPROM 40 stores number of pictures that can be taken in each resolution. The predetermined decrement number depends upon whether the image is a low or high-resolution image which means that the predetermined decrement number corresponds to the size of image file].

[Claim 4]

The camera of Claim 3 wherein the control circuit uses a look up table to retrieve the predetermined decrement number corresponding to each image file size (col. 3 lines 32-40)[8-bit MPU 28 reads the EPROM 40 which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The predetermined decrement number depends upon whether the image is a low or high-resolution image, which means that the predetermined decrement number corresponds to the size of image file].

[Claim 6]

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The camera of Claim 1 wherein the control circuit causes the indicating means (figure 1: 36, The indicating means is a display device) to indicate that the remaining picture count is zero when the control circuit (figures 1A and 1B: 28 and 34) determines that a remaining capacity of the memory is insufficient to store an image file of a predetermined maximum image file size (col. 3 lines 27-58, col. 4 lines 30-35).

[Claim 8]

The camera of Claim 1 wherein the plurality of picture modes includes a plurality of picture resolutions (col. 3 lines 27-58 figure 4: S100).

[Claim 11]

A method of operating a digital still camera (figure 1: 10), comprising the steps of selecting one of a plurality of picture modes on a digital still camera (col. 4 lines 36-39 figure 4: S100); taking a picture with the camera (col. 2 lines 65-67); storing an image file representing the picture in a memory in the camera in accordance with the selected picture mode (figure 4: steps 108 and 116); determining a remaining picture count based on a predetermined decrement number corresponding to the image file (col. 4 lines 20-35)[The MPU 34 compares the total number of pictures taken with a predetermined number and decrements the remaining picture count after each low or high resolution image is taken (Low or high resolutions correspond to image files)] and indicating the remaining picture count to a user (figure 3a, 3b: 50, 52 col. 3 lines 27-30).

[Claim 13]

The method of Claim 11 wherein the remaining picture count is initially determined based on a capacity of the memory before any image files have been stored in the memory and thereafter the

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remaining picture count is decremented after each image file has been stored in the memory by a predetermined number corresponding to a size of the image file just stored (col. 4 lines 20-35, figure 4)[Initially the MPU 34 determines the available capacity in steps S102 and S110 and depending on the low or high resolution, it indicates the remaining picture count on the display device 56 and keeps on decrementing the remaining picture count after each image is taken]. Regarding claims 12,14,16,18 these are method claims corresponding to apparatus claims 2,4,6 and 8 respectively. Therefore these claims are analyzed and rejected based on the apparatus claims 2,4,6 and 8.

[Claim 21]

A digital still camera (figure 1: 10), comprising:

an image sensor (figure 1A: 20) mounted in a housing for receiving light transmitted through a lens and generating output signals representative of an image of an object or a scene of interest (col. 2 lines 65-67) [It is inherent that an image sensor and other circuitry associated with it is enclosed in a housing for a digital camera];

a processing circuit (figure 1B: 26) mounted in the housing and connected to the image sensor for processing the output signals from the image sensor (Col. 3 lines 9-12);

a memory (figure 1C: 32) mounted in the housing;

a control circuit (figures 1A and 1B: 28 and 34) mounted in the housing and connected to the processing circuit for successively generating a plurality of image files corresponding to a plurality of images and storing the image files in the memory in accordance with a selected one of a plurality of picture modes (col. 3 lines 6-15, col. 4 lines 14-35), the control circuit determining a remaining picture count by searching a look up table (col. 4 lines 20-35, col. 3

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lines 32-40)[The MPU 34 compares the total number of pictures taken with a predetermined number and decrements the remaining picture count after each low or high resolution image is taken. 8-bit MPU 28 reads the EPROM 40 which can be read as a lookup table and stores the number of pictures that can be taken in each resolution];

and

means mounted in the housing for indicating the remaining picture count to a user (figure 3a, 3b: 50, 52 col. 3 lines 27-30).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411).

[Claim 5]

The camera of Claim 1 wherein the control circuit utilizes a plurality of look up tables each corresponding to one of the plurality of picture modes. Shen teaches memory (EPROM 40) which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The 4-bit MPU (figure 1A: 34) reads low-resolution picture, 8-bit MPU (figure 1B: 28) reads high-resolution pictures. Therefore, the two work together as multiple reads to indicate high/low resolution mode and also number of pictures that can be taken in each resolution. Thus, the read from EPROM 40 is similar to reading multiple LUTs as claimed (col. 3 lines 27-58).

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4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Wong et al. (US PG-PUB # 2003/0058355).

[Claim 15]

Shen teaches the limitations of claim 11 but fails to teach "... wherein the image files are stored in a removable memory." However these limitations are well known in the art as evidenced in Wong (Paragraph 0010). Therefore taking the combined teachings of Shen and Wong it would have been obvious to one skilled in the art to have image files be stored in a removable memory. Doing so would allow us to use the memory card for subsequent processing of the image data as taught in Wong.

5. Claims 7, 9, 10, 17, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Uehara (US Patent # 5,481,303).

[Claim 7]

Shen teaches the limitations of claim 1 but fails to teach "... wherein the control circuit compresses an output from the processing circuit in generating the plurality of image files". However these limitations are well known in the art as evidenced in Uehara (col. 3 lines 34-38, figure 1: 7). Therefore taking the combined teachings of Shen and Uehara it would have been obvious to one skilled in the art that the control circuit compresses an output from the processing circuit in generating the plurality of image files. Doing so would be advantageous because by compressing the images the storage space can be used more efficiently.

[Claim 9]

Shen teaches the limitations of claim 1 but fails to teach "... wherein the plurality of picture modes includes a plurality of data compression levels." However these limitations are well

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known in the art as evidenced in Uehara (col. 1 lines 20-23). Therefore taking the combined teachings of Shen and Uehara it would have been obvious to one skilled in the art that plurality of picture modes includes a plurality of data compression levels. Doing so would allow us to use memory more efficiently.

[Claim 10]

Shen teaches “.... wherein the plurality of picture modes includes a plurality of pre-set combinations of a selected one of a plurality of picture resolutions (col. 4 lines 36-39 figure 4: S100)” but fails to teach a selected one of a plurality of data compression levels. Shen et al. do not teach a plurality of data compression levels. However these limitations are well known in the art as evidenced in Uehara (col. 1 lines 20-23). Therefore taking the combined teachings of Shen and Uehara it would have been obvious to one skilled in the art that plurality of picture modes includes a plurality of data compression levels. Doing so would allow us to use the memory more efficiently.

Regarding claims 17 and 19, these are method claims corresponding to apparatus claims 7 and 9 respectively. Therefore these claims are analyzed and rejected based on the apparatus claims 7 and 9.

[Claim 20]

Shen teaches the following:

A digital still camera (figure 1: 10), comprising:

an image sensor (figure 1A: 20) mounted in a housing for receiving light and generating output signals representative of an image of an object or a scene of interest (col. 2 lines 65-67) [It

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is inherent that an image sensor and other circuitry associated with it is enclosed in a housing for a digital camera];

a processing circuit (figure 1B: 26) mounted in the housing and connected to the image sensor for processing the output signals from the image sensor (col. 3 lines 9-12);

a memory (figure 1C: 32) mounted in the housing;

a control circuit (figures 1A and 1B: 28 and 34) mounted in the housing and connected to the processing circuit for successively generating a plurality of image files corresponding to a plurality of images and storing the image files in the memory in accordance with a selected one of a plurality of picture modes selected from the group consisting of a plurality of picture resolutions (col. 3 lines 6-15, col. 4 lines 14-35),

the control circuit initially determining the remaining picture count based on a capacity of the memory before any image files have been stored in the memory and thereafter the control circuit decrementing the remaining picture count after each image file has been stored in the memory by a predetermined number each corresponding to one of a size of the image file just stored (col. 4 lines 20-35, figure 4)[Initially the MPU 34 determines the available capacity in steps S102 and S110 and depending on the low or high resolution, it indicates the remaining picture count on the display device 56 and keeps on decrementing the remaining picture count after each image is taken],

and the control circuit causing the remaining picture count to be set to zero when the control circuit determines that a remaining capacity of the memory is insufficient to store an image file of a predetermined maximum image file size (col. 4 lines 30-35); and

means mounted in the housing for indicating the remaining picture count to a user (figure 3a, 3b: 50, 52 col. 3 lines 27-30).

the control circuit determining a remaining picture count after each image file is stored in the memory based on a plurality of look up tables each corresponding to one of the plurality of picture modes (col. 3 lines 32-40)[8-bit MPU 28 reads the EPROM 40 which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The predetermined decrement number depends upon whether the image is a low or high-resolution image, which means that the predetermined decrement number corresponds to the size of image file]. Shen teaches memory (EPROM 40) which can be read as a lookup table and stores the number of pictures that can be taken in each resolution. The 4-bit MPU (figure 1A: 34) reads low-resolution picture, 8-bit MPU (figure 1B: 28) reads high-resolution pictures. Therefore, the two work together as multiple reads to indicate high/low resolution mode and also number of pictures that can be taken in each resolution. Thus, the read from EPROM 40 is similar to reading multiple LUTs as claimed (col. 3 lines 27-58).

A plurality of combinations of picture resolutions (col. 4 lines 36-39 figure 4: S100).

Shen fails to teach a selected one of a plurality of data compression levels. However these limitations are well known in the art as evidenced in Uehara (col. 1 lines 20-23). Therefore taking the combined teachings of Shen and Uehara it would have been obvious to one skilled in the art to have a plurality of picture modes including a plurality of data compression levels. Doing so would allow us to use the memory more efficiently.

6. Claims 22, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Moore (US Patent # 6,282,605).

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[Claim 22]

Shen teaches the limitations of claim 21 but fails to teach wherein the look up table is searched in a linear fashion. However this limitation is well known in the art as taught by Moore (col. 6 lines 42-46)[The flash memory 20 disclosed in figure 1 can be considered as a LUT because it can be searched with a binary or linear search algorithm for a particular address]. Therefore taking the combined teachings of Shen and Moore it is obvious to one skilled in the art to have a look up table, which is searched in a linear fashion. Doing so is advantageous because linear search is simpler.

[Claim 23]

Shen teaches the limitations of claim 21 but fails to teach wherein the look up table is searched in a binary fashion. However this limitation is well known in the art as taught by Moore (col. 6 lines 42-46). [The flash memory 20 disclosed in figure 1 can be considered as a LUT because it can be searched with a binary or linear search algorithm for a particular address]. Therefore taking the combined teachings of Shen and Moore it is obvious to one skilled in the art to have a look up table, which is searched in a binary fashion. Doing so is advantageous because binary search is faster.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Roberts et al. (US Patent # 6,233,010).

[Claim 24]

Shen teaches the limitations of claim 21 but fails to teach “.... wherein the control circuit determines the remaining picture count by performing a logical AND operation between a pair of memory addresses”. However this limitation is well known in the art as taught by Roberts (col. 5

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lines 13-26, figure 6A: 60a and 60b)[Depending upon the position of the switches 14A and 14B which represent a word or an address as claimed their output is logically ANDed to determine whether the picture is high resolution or low resolution which means that the remaining picture count can be indicated depending upon the resolution]. Therefore taking the combined teachings of Shen and Roberts it would have been obvious to one skilled in the art to have a control circuit that determines the remaining picture count by performing a logical AND operation between a pair of memory addresses. Doing so would allow us to determine the remaining picture count in an efficient way because only one logical AND operation is needed.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US Patent # 6,122,411) in view of Haruki (US Patent # 6,603,509).

[Claim 25]

Shen teaches a look up table includes a plurality of different free memory space values and the look up table is searched after each image file is generated (col. 3 lines 34-40)[EPROM 40 which can be read as a lookup table includes a plurality of memory space values corresponding to high and low resolution and is searched by the MPU 28 after each image file is taken]

Shen fails to teach locating a pair of free space memory values that bracket an actual free memory space value determined by the control circuit based on the size of each image file that is stored". However this limitation is well known in the art as taught by Haruki (col. 4 lines 15-27, figures 2A and 3)[The 2-cluster area searched as a vacant area in figure 2(b) follows a free memory space area and is determined by the control circuit based on the size of the program p]. Therefore taking the combined teachings of Shen and Haruki it would have been obvious to one skilled in the art to have a pair of free space memory values that bracket an actual free memory

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space value determined by the control circuit based on the size of each image file. Doing so would allow us to search additional area required for the control program into the memory.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

i. Koide et al. (US Patent # 6,433,820).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5: 30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary examiner, Vu Le can be reached (703) 308-6613. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

YKA
February 10, 2004


VU LE
PRIMARY EXAMINER